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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/817,052	04/02/2004	Brian Wells	130109.405C1	2233
500 7590 08/19/2008 SEED INTELLECTUAL PROPERTY LAW GROUP PLLC 701 FIFTH AVE SUITE 5400 SEATTLE, WA 98104				
EXAMINER MARTIN, ANGELA J				
ART UNIT		PAPER NUMBER		
1795				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/817,052

Applicant(s)

WELLS ET AL.

Examiner

ANGELA J. MARTIN

Art Unit

1795

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 May 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 4/2/04 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CD/CIS)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

This Office Action is responsive to the Amendment filed on May 27, 2008. Applicants have amended claim 1 to overcome the objection to claim 1. Applicant has canceled non-elected claims 10-44. However, the rejection is made final for the following reasons of record.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Fuglevand et al., U.S. Pat. 6,387,556 B1.

Rejection of claims 1-9 drawn to a fuel cell system.

Fuglevand et al., teach a fuel cell system, comprising: a fuel cell stack (abstract); an oxygen concentration sensor positioned proximate the fuel cell stack (col. 6, lines 7-12); a hydrogen concentration sensor positioned proximate the fuel cell stack (claim 78); a stack temperature sensor positioned to monitor a temperature of the fuel cell stack (col. 5, lines 10-16); a fuel cell stack current sensor coupled to measure a current through the fuel cell stack (col. 4, lines 51-62); a fuel cell stack voltage sensor coupled across the fuel cell stack to measure a voltage across the fuel cell stack (col. 9, lines

35-41); and a microcontroller coupled to the oxygen concentration sensor, the hydrogen concentration sensor, the stack temperature sensor, the fuel cell stack current sensor and the fuel cell stack voltage sensor to receive signals corresponding to an oxygen concentration reading of the oxygen concentration sensor, a hydrogen concentration reading of the hydrogen concentration sensor, a temperature reading to the stack temperature sensor, a current reading of the current through the fuel cell stack and a voltage reading of the voltage across the fuel cell stack, respectively, the microcontroller configured to compare the oxygen concentration reading to a oxygen concentration threshold value, the hydrogen concentration reading to a hydrogen threshold value, the temperature reading to a temperature threshold value, the stack current reading to a stack current threshold and the stack voltage reading to a stack voltage threshold on a predefined schedule during normal operation of the fuel cell system (col. 10, lines 42-53). The fuel cell system of claim 1 wherein the microcontroller is configured to stop operation of the fuel stack in the case of at least one of: the oxygen concentration reading is lower than the oxygen concentration threshold value; the hydrogen concentration reading is greater than the hydrogen threshold value; the temperature reading is greater than the temperature threshold value; the stack current reading is greater than the stack current threshold; and the stack voltage reading is greater than the stack voltage threshold (col. 10, lines 42-63). The fuel cell system of claim 1, further comprising: an air compressor positioned to pass air over the fuel cell stack, wherein the microcontroller is configured to vary a duty cycle of the air compressor in response to the stack current reading (col. 19, lines 3-10). The fuel cell system of claim 1, further

comprising: an air compressor positioned to pass air over the fuel cell stack, wherein the microcontroller is configured to vary a duty cycle of the air compressor in response to the stack current reading and the hydrogen sensor is positioned downstream from the fuel cell stack with respect to the flow of air from the air compressor (claim 39). The fuel cell system of claim 1, further comprising: a fuel cell voltage checking sensor coupled to a number of pairs of fuel cells to measure a voltage across each pair of fuel cells, wherein the microprocessor is further coupled to the fuel cell voltage checking sensor to receive signals corresponding a status of the fuel cells (col. 9, lines 35-40). The fuel cell system of claim 1, further comprising: a purge cell voltage checking sensor coupled to a purge cell to measure a voltage across the purge cell, wherein the microprocessor is further coupled to the purge cell voltage checking sensor to receive signals corresponding a purge cell voltage reading measured across the purge cell, and wherein the microcontroller is further configured to compare the purge cell voltage reading to an average fuel cell voltage based on the stack voltage reading (claim 253, 297). The fuel cell system of claim 1, further comprising: an air flow sensor positioned measure an air flow over the fuel cell stack, and wherein the microcontroller is further coupled receive a signal from the air flow sensor corresponding to the measured air flow over the fuel cell stack (col. 9, lines 35-40). The fuel cell system of claim 1, further comprising: an ambient air temperature sensor positioned proximate the fuel cell stack to measure an ambient air temperature proximate the fuel cell stack, wherein the microcontroller is configured to prevent a start up of the fuel cell system and to stop operation of the fuel cell system if the ambient air temperature proximate the fuel cell

stack is below an air temperature threshold (col. 13, lines 31-47). The fuel cell system of claim 1, further comprising: a fuel pressure sensor coupled to a fuel delivery system of the fuel cell system to measure fuel pressure in at least one fuel tank, wherein the microcontroller is configured to prevent a start up of the fuel cell system and to stop operation of the fuel cell system if the fuel pressure is below a fuel pressure threshold (col. 12, lines 64-67 and col. 13, lines 1-5; claims 22, 252).

Thus, the claims are anticipated.

Response to Arguments

3. Applicant's arguments filed 5/27/08 have been fully considered but they are not persuasive. Applicant argues that Fuglevand does not teach an oxygen concentration sensor. However, Fuglevand discloses a control system which controls the oxygen concentration via recirculated and/or fresh ambient air, as disclosed in col. 6, lines 36-47. In addition, Applicant argues that Fuglevand does not disclose a fuel cell stack voltage sensor to measure a voltage across the fuel cell stack. However, Fuglevand discloses that the control system can monitor the "total system voltage" in col. 6, lines 54-63. Applicant argues that Fuglevand does not teach the hydrogen sensor is downstream from the fuel cell stack; however, as disclosed in Fig. 2, the hydrogen sensor (ref. 58, 61) is located downstream to air flow (ref. 56). Applicant argues that the microcontroller of Fuglevand does not compare oxygen concentration reading to an oxygen concentration value and the stack voltage reading to a stack voltage threshold and does not receive a signal from the air flow sensor and does not prevent a start up of

the system or to stop operation of the system; however, a microcontroller can be configured to compare any of the readings in a fuel cell system. Applicant argues that Fuglevand does not teach a purge cell voltage checking sensor; However, Fuglevand teaches a purge cell connected to a control system (microcontroller) and a microcontroller can be configured to check the purge cell voltage.

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANGELA J. MARTIN whose telephone number is

(571)272-1288. The examiner can normally be reached on Monday-Friday from 10:00 am to 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AJM
Examiner, Art Unit 1795

/PATRICK RYAN/
Supervisory Patent Examiner, Art Unit 1795

Application Number**Application/Control No.**

10/817,052

**Applicant(s)/Patent under
Reexamination**

WELLS ET AL.

Examiner

ANGELA J. MARTIN

Art Unit

1795